

5

Each support cable 34 extends outwardly beyond the corresponding bracket 62 and is provided with a looped end 72 secured in a looped configuration by a cable clamp 74 or other suitable fastener. A metal wear strip 76 may be secured within the looped end 72 of each cable 34.

Along each of the eaves 20, an eave cable 78 is extended through the loops 72 on the ends of the support cables. The eave cable 78 is maintained in a taut condition and is spaced outwardly a selected distance from the fabric sleeve 46 to provide a space through which snow and other materials may be discharged from the canopy. The spacing between the sleeve 46 and eave cable 78 may be selected as desired, dependent primarily on the amount of snow expected in the climate where the canopy is to be installed.

The canopy 10 of the present invention is particularly characterized by the ability to discharge ice, snow, and other materials that may unduly build up on the cover 36. Flexible covers such as the cover 36 tend to sag at locations between the support cables 34 when snow and other loads are applied to the top of the cover. Such sagging tends to create "cups" at locations near the eaves 20, and the cups provide sagging areas in which snow and other materials can build up excessively and apply forces that are large enough to cause rupture or other structural damage to the canopy.

The excessive accumulation of snow and other materials is avoided by the eave construction of the present invention. If one or more of the panels 38 is loaded with snow, ice, or another material that tends to build up and create a cupping effect in the panel, the resulting load that is applied to the eave 20 is received by the corresponding rod 52. If the load reaches a sufficiently high level, the rod 52 bows downwardly near its center, thereby lowering that portion of the eave and allowing the material to slide off of the panel 38 and over the sleeve 46. The rod 52 bows such that a chute is formed midway between the seams 40, with the chute configuration providing a path for the snow to discharge under the influence of gravity. The material discharges from the cover 36 through the space that is presented between the eave cable 78 and the sleeve 46.

As the rod 52 flexes or bows downwardly, its ends slide outwardly in the pipes 50. It is contemplated that with the rods 52 extending approximately six inches into the pipes 50 at the opposite ends of the rods, the rods will slide outwardly at the most about three inches so that approximately three inches of each end of the rod remains in the pipe 50 to assure continuous structural integrity of the eave. Thus, at even the maximum deflection of rod 52, enough of the rod remains extended into the pipes 50 to prevent the eave from failing structurally.

Once the load has been discharged from the fabric panel 38, the stiffness of the rod 52 causes it to spring or snap back to its normal straight condition. Consequently, the rod again assumes its normal straight condition extending horizontally along the eave of the canopy. The securement provided by the bend 54 and stitching 56 assists in maintaining the ends of the rods 52 at least partially in the pipes 50 at all times.

In addition to this automatic snow removal, the invention also features the clamp brackets 60 which facilitate pulling the cover 36 into a taut condition on the support cables 34 and securely clamping the cable 34 to each bracket 60 in order to secure the cover in a taut condition. This tautness opposes any tendency for the fabric panels to cup in the first place and thus provides assistance in preventing undue buildup of snow, ice, or other materials on the roof of the canopy 10.

From the foregoing it will be seen that this invention is one well adapted to attain all ends and objects hereinabove

6

set forth together with the other advantages which are obvious and which are inherent to the structure.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

Since many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative, and not in a limiting sense.

Having thus described the invention, what is claimed is:

1. In a canopy structure which includes a plurality of posts, a plurality of cables supported on the posts, a flexible cover supported on the cables, and a sleeve on the cover extending along an eave of the structure, an improved eave construction comprising an elongate rod in the sleeve sufficiently stiff to normally extend in a substantially straight condition but flexing to bow downwardly when heavy materials are on the cover, thereby allowing the materials to slide off of the cover with the rod thereafter resuming a substantially straight condition.

2. An eave construction as set forth in claim 1, including a pair of pipes in the sleeve receiving said rod at opposite end portions thereof.

3. An eave construction as set forth in claim 2, including: a bracket applied to said sleeve and to at least one of said pipes to allow the cover to be pulled tautly on the cables; and

a clamp on the bracket secured thereto and clamped to one of the cables to secure the cover to said one cable in a taut condition.

4. An eave construction as set forth in claim 3, including: a looped end portion of said one cable spaced outwardly from the sleeve; and

an eave cable extending through said looped end portion of said one cable.

5. An eave construction as set forth in claim 1, including a securement securing an intermediate portion of said rod to said cover.

6. An eave construction as set forth in claim 2, including a securement securing an intermediate portion of said rod to said cover to prevent the rod from sliding completely out of either pipe when the rod bows downwardly.

7. An eave construction as set forth in claim 1, including: a bend in an intermediate portion of said rod; and stitching securing said bend to the cover.

8. An eave construction as set forth in claim 1, including a slit in said sleeve at a preselected location to allow insertion of said rod into said sleeve.

9. An eave construction for a canopy structure having a plurality of posts, a plurality of cables supported on the posts, and a flexible cover supported on the cables, said eave construction comprising:

a sleeve on an edge of the cover extending along an eave of the structure;

a pair of pipes secured in said sleeve at selectively spaced locations therein; and

an elongate rod in said sleeve having opposite end portions fitting slidably in said pipes, said rod being sufficiently stiff to normally extend in a substantially straight condition between said pipes but flexing downwardly in response to application of heavy materials to the cover to thereby allow the materials to slide off of the cover past the eave of the structure.

7

10. An eave construction as set forth in claim 9, wherein:  
said cables include a plurality of generally parallel cover  
support cables having end portions adjacent to the eave  
of the structure;

said cover includes a plurality of seams along which the  
cover support cables extend; and

said pipes are located in said sleeve at adjacent seams.

11. An eave construction as set forth in claim 10, including:

a pair of brackets applied to said sleeve and to the  
respective pipes to allow the cover to be pulled tautly  
on a pair of the support cables which extend along the  
seams corresponding to the locations of said pipes; and

a clamp on each bracket secured thereto and clamped to  
the corresponding support cable in said pair thereof to  
secure the cover to said pair of support cables in a taut  
condition.

12. An eave construction as set forth in claim 11, including:

a looped end portion of each support cable in said pair  
thereof spaced outwardly from said sleeve; and

an eave cable extending through said looped end portions.

13. An eave construction as set forth in claim 9, wherein  
said rod is secured to the cover at a location intermediate  
said opposite end portions of the rod.

14. An eave construction as set forth in claim 9, including  
a slit in said sleeve accommodating insertion of said rod into  
the sleeve.

15. An eave construction as set forth in claim 9, including:

a pair of brackets each having a barrel portion extending  
partially around said sleeve and the respective pipes  
therein to allow said brackets to pull the cover tautly on  
the cables; and

a clamp on each bracket adapted to clamp onto an  
adjacent cable to secure the cover thereto in a taut  
condition.

16. A canopy structure for covering large surfaces such as  
parking lots, comprising:

a plurality of posts spaced apart from one another;

a plurality of cables including cables extending between  
the posts and a plurality of generally parallel cover  
support cables having end portions adjacent to an eave of  
the structure;

a flexible cover having a plurality of panels connected  
edge to edge at seams providing passages through  
which said support cables extend, said cover having an  
edge formed as a sleeve extending along the eave of the  
structure;

8

a plurality of hollow pipes in said sleeve, one pipe located  
adjacent to each seam; and

a plurality of elongate rods in said sleeve each extending  
between an adjacent pair of pipes to situate the rods  
generally end to end with the rods being slidable in the  
pipes, each rod being sufficiently stiff to normally  
maintain a substantially straight condition but flexing  
downwardly between the pipes when heavy material is  
loaded on the cover between the corresponding seams,  
thereby allowing the material to slide off of the cover  
with the rod thereafter resuming a substantially straight  
condition.

17. A canopy structure as set forth in claim 16, including:

a bracket applied to said sleeve and to at least one of said  
pipes to allow the cover to be pulled tautly on the  
cables; and

a clamp on the bracket secured thereto and clamped to one  
of the cables to secure the cover to said one cable in a  
taut condition.

18. A canopy structure as set forth in claim 17, including:

a looped end portion of said one cable spaced outwardly  
from the sleeve; and

an eave cable extending through said looped end portion  
of said one cable.

19. A canopy structure as set forth in claim 16, including  
a slit in said sleeve adjacent each seam to allow insertion of  
said pipes and rods into the sleeve.

20. A canopy structure for covering large surfaces such as  
parking lots, comprising:

a plurality of posts spaced apart from one another;

a plurality of cables including cables supported on said  
posts and a plurality of generally parallel cover support  
cables having end portions adjacent an eave of the  
canopy structure;

a flexible cover supported on said cover support cables  
and having a sleeve extending generally along said  
eave;

an eave structure in said sleeve providing rigidity thereto;

a plurality of brackets spaced apart along the eave, each  
bracket having a barrel portion extending partially  
around said sleeve and receiving said eave structure in  
the barrel so that pulling on the brackets pulls the cover  
tautly on said support cables; and

a clamp on each bracket clamped onto an adjacent support  
cable to secure the cover thereto in a taut condition.

\* \* \* \* \*